

BEST AVAILABLE COPY

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-16 (cancelled)

Listings of Claims:

Claim 17: (amended herein) An electroplating process unit comprising:
a plating bath container;
a current source disposed within said plating bath container;
a wafer holder;
an actuator coupled to said wafer holder, said actuator being capable of rotating said wafer holder about a vertical axis and of moving said wafer hold upward and downward along said vertical axis;
an annular recirculation inlet located at a first level above said plating bath container, said annular recirculation inlet being in flow communication with a pump for recirculating a fluid to said plating bath container; and
an annular waste inlet located at a second level above said plating bath container, said annular waste inlet being in flow communication with a waste drain.

Claim 18: (previously added) The electroplating process unit of Claim 17 wherein said annular recirculation inlet has a first diameter that is smaller than a second diameter of said annular waste inlet.

Claim 19: (amended herein) A method of using the electroplating process unit of Claim 17 comprising:
positioning a wafer in said wafer holder;
introducing a plating solution into said plating bath container;
immersing said wafer in said plating solution;
using said current source to convey an electrical current through said plating solution to said wafer;
using said actuator to move said wafer holder to a first position above said solution;

while said wafer holder is in said first position, spraying a first volume of rinse solution against said wafer and rotating said wafer at a rate such that substantially all of said first volume of rinse solution enters said annular recirculation inlet; and using said actuator to move said wafer holder to a second position above said solution; and

while said wafer holder is in said second position, spraying a second volume of rinse solution against said wafer such that substantially all of said second volume of rinse solution enters said annular waste inlet.

Claim 20: (previously added) The method of Claim 19 wherein said first volume of rinse solution is smaller than said second volume of rinse solution.

Claim 21: (amended herein) A method of electroplating a semiconductor wafer using an electroplating process unit, the electroplating process unit comprising:

a plating bath container;

a current source disposed within said plating bath container;

a wafer holder;

an actuator coupled to said wafer holder, said actuator being capable of rotating said wafer holder about a vertical axis and of moving said wafer holder upward and downward along said vertical axis; and

an annular waste inlet located at a level above said plating bath container, said annular waste inlet being in flow communication with a waste drain; said method comprising:

positioning a wafer in said wafer holder;

introducing a plating solution into said plating bath container;

using said current source to convey an electrical current through said plating solution to said wafer;

using said actuator to move said wafer holder to a first position above said solution;

while said wafer holder is in said first position, pre-wetting said wafer by spraying a first volume of rinse solution against said wafer and rotating said wafer at a rate such that substantially all of said first volume of rinse solution enters said annular waste inlet; and

after said pre-wetting, immersing said wafer in said plating solution.

Claim 22: (amended herein) The method of Claim 21 wherein said electroplating unit further comprises an annular recirculation inlet located at a second level above said plating bath container, said annular recirculation inlet being in flow communication with a pump for recirculating a fluid to said plating bath container, said method comprising:

after said immersing, using said actuator to move said wafer holder to a second position above said plating solution; and

while said wafer is in said second position, spraying a second volume of rinse solution against said wafer while and rotating said wafer at a rate such that substantially all of said second volume of rinse solution enters said annular recirculation inlet.

Claim 23: (previously added) The method of Claim 22 comprising:

after said spraying said second volume of rinse solution, using said actuator to move said wafer holder to said first position; and

while said wafer is in said first position, spraying a third volume of rinse solution against said wafer and rotating said wafer at a rate such that substantially all of said third volume of rinse solution enters said annular waste inlet.

Claim 24: (previously added) The method of Claim 23 wherein said second volume of rinse solution is smaller than said third volume of rinse solution.

Claim 25: (new) The electroplating process unit of Claim 17 wherein said actuator comprises a leadscrew.

Claim 26: (new) The electroplating process unit of Claim 25 wherein said actuator is controlled by an instruction generated by a controller.